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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/514,451	02/25/2000	Anand G. Dabak	TI-28997	7626

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EXAMINER

FERRIS, DERRICK W

ART UNIT	PAPER NUMBER
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2663

DATE MAILED: 07/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/514,451

Applicant(s)

DABAK, ANAND G.

Examiner

Derrick W. Ferris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u> . | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-3,5-9, and 11-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,127,971 to *Calderbank et al.* ("*Calderbank*") in view of "Wideband CDMA simulation" to *Shinoda et al.* ("*Shinoda*").

As to **claims 1, 2 and 3**, applicant in general claims a cell section method using transmit diversity implemented using (but not claimed) site selection diversity (SSDT) and space-time transmit diversity (STTD). With respect to the recited claim, examiner notes SSDT is broadly claimed as part of a system in general for receiving signals from a plurality of remote transmitters and STTD is broadly claimed as part of a plurality of signals from each remote transmitter. *Calderbank* attempts to solve the problem of transmit diversity using combined array processing and space-time coding for an open loop transmit diversity system [e.g., column 6, lines 17-25]. Shown in the figure is receiving a plurality of signals from a plurality of remote transmitters. Disclosed by the reference is a further step of determining which of the remote transmitters (i.e., encoders 110, 120, or 130) use transmit diversity as well as selecting one of the remote transmitters in response to the steps of determining and calculating. In particular, *Calderbank* discloses selecting a "best" antenna where all other antennas are treated as interference

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[e.g., column 3, lines 2-9]. Examiner furthermore notes that one of the “groups” contains no diversity since only one antenna is being used.

Not clearly disclosed by the reference is a step of calculating the signal strength of each respective signal of the plurality of signals. Examiner notes that it would have been either inherent or obvious to a skilled artisan prior to applicant’s invention to use some type of measurement since these measurements are used as part of the group interference suppression since each transmitter transmits at a different power. *Shinoda* discloses further motivation by disclosing that SIR measurements are used for power control scheme [see page 321 of *Shinoda*] for each group that has a different power [e.g., see column 7, lines 37-46 of *Calderbank*].

Examiner notes that although *Calderbank* discloses a downlink method and *Shinoda* discloses an uplink method, examiner notes there is a motivation to combine the subject matter as a whole for both references since both references disclose telecommunications in general, and more specifically, site diversity and transmission performance using antennas.

As to **claims 5**, *Calderbank* discloses using codes for each group [column 5, lines 2-4].

As to **claim 6**, see the rejection for claim 1.

As to **claim 7**, see the rejection for claim 1 where *Calderbank* discloses using an open system for transmit diversity which includes space-time codes (i.e., space time transmit diversity).

As to **claim 8**, examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to use a general comparing function for SIR. One motivation would be to see if the new SIR value is above or below a certain threshold for channel selection. As additional support, *Shinoda* discloses general comparison of SIR information (i.e., based on the received SIR measurement a certain action is performed).

As to **claim 9**, see the rejection of claim 1.

As to **claim 11**, see the rejection for claim 7.

As to **claim 12**, see the rejection for claim 1

As to **claim 13**, *Calderbank* discloses the use of data symbols [column 4, lines 59-60].

As to **claim 14**, both references disclose an open-loop system for transmit diversity [e.g., see *Calderbank* column 6, lines 19-25].

3. **Claims 4 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,127,971 to *Calderbank et al.* ("*Calderbank*") in view of "Wideband CDMA simulation" to *Shinoda et al.* ("*Shinoda*") in further view of U.S. Patent No. 6,317,411 to *Whinnett et al.* ("*Whinnett*").

As to **claims 4 and 10**, it would have been obvious to a skilled artisan prior to applicant's invention to use pilot symbols are part of a measurement. *Whinnett* provides support and motivation by disclosing that pilot signals can be added to the transmitter so that channel measurements can be made [column 6, lines 42-43].

4. **Claims 9, 10 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over "Transmit Diversity by Antenna Selection in CDMA Downlink" to *Hottinen et al.* ("*Hottinen*").

As to **claim 9**, applicant in general claims a cell section method using transmit diversity implemented using (but not claimed) site selection diversity (SSDT) and space-time transmit diversity (STTD). With respect to the recited claim, examiner notes SSDT is broadly claimed as part of a system in general for receiving signals from a plurality of remote transmitters and STTD is broadly claimed as part of a plurality of signals from each remote transmitter (i.e., examiner notes that neither STTD nor the attributes of an open loop system for transmit diversity are claimed such that examiner has based the rejection on a broad but reasonable interpretation which includes STD, a closed loop system for transmit diversity as is known in the art). In particular, *Hottinen* discloses transmit diversity in general for a CDMA system. Specifically, *Hottinen* discloses selective transmitter diversity (STD) which is a form of closed-loop transmitter diversity as is known in the art which contains a transmitter with at least two antenna (e.g., 2L). *Hottinen* discloses a transmit diversity concept for CDMA systems in which the distribution of the encoded bits is more selective. The encoded bits are transmitted only from the “best” antenna, as signaled from each terminal where feedback signaling is used to perform fast closed loop power control (CL-PC) for the selection of the down link antenna [see page 767, right-hand column]. Thus *Hottinen* discloses receiving a plurality of signals [see page 768 section III] from a plurality of remote transmitters (e.g., base stations) [see page 767 section I right-hand column]. As STD works well with CDMA examiner notes that *Hottinen* also discloses receiving an identity of a selected transmitter as well as general signal strength.

What may not be clearly taught by the reference is the further step of “transmitting from the selected transmitter and not the transmitting at least one signal from at least another transmitter in response to the step of receiving”. Examiner notes that it would have been obvious to a skilled artisan prior to applicant’s invention to not transmit at least one signal from a different transmitter in response to a receiving step. Taught by the reference in general is selecting a “best” antenna from each terminal (e.g., base stations) to transmit information. In particular and as is known in the art for the STD scheme, a feedback link from the receiver tells the transmitter which antenna to use for each transmitter and then the transmitter sends link quality information about M (number of antennas) links over the best antenna. Thus *Hottinen* discloses for another transmitter transmitting on the “best” antenna, such that one or more other antennas for said another transmitter do not transmit information (i.e., only the “best” antenna transmits information).

As to **claim 10**, *Hottinen* discloses using pilot signals as is well known in the art [page 769 left-hand column].

As to **claim 13**, see the rejection for claim 9 where the symbols are data symbols as is known in the art.

5. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over “Transmit Diversity by Antenna Selection in CDMA Downlink” to *Hottinen et al.* (“*Hottinen*”) in view of “Wideband CDMA Simulator” to *Shinoda et al.* (“*Shinoda*”).

As to **claim 12**, examiner notes that it would have been obvious to a skilled artisan prior to applicant’s invention to use signal-to-interference ratio as a measure for

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the signal strength. Examiner notes a motivation exists since signal-to-interference (SIR) provides a measure of quality of a link and act as a quality indicator in general. As further motivation, *Shinoda* discloses using SIR measurement for power control [page 321]. Examiner notes that although *Hottinen* discloses a downlink method and *Shinoda* discloses an uplink method, examiner notes there is a motivation to combine the subject matter of both references as a whole since both references disclose CDMA in general, and more particularly, site diversity and transmission performance.


Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derrick W. Ferris whose telephone number is (703) 305-4225. The examiner can normally be reached on M-F 9 A.M. - 4:30 P.M. E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (703) 308-5340. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-3900.

Derrick W. Ferris
Examiner
Art Unit 2663

DWF 
July 9, 2003


MELVIN MARCELO
PRIMARY EXAMINER